

**June 2002**

### **Recruits' education**

Recruits are classified into three tiers: (1) primarily high school graduates, (2) primarily GEDs, and (3) high school dropouts. The DOD standard is that only 10 percent of accessions should come from tiers 2 and 3. While examining the performance of home-schooled high school graduates and graduates of the National Guard's ChalleNGe program, we noticed a difference between personnel records and what recruits were reporting. Personnel records showed that 10 percent of the enlisted recruits were in tiers 2 and 3; a survey we conducted of recruits in boot camps revealed that 18 percent of recruits fell into those categories. Almost twice as many recruits were reporting they were not high school graduates as had been reported in the personnel records.

This misclassification has its costs. Misclassified recruits have significantly higher attrition and lower aptitude scores than tier 1 recruits, leading to higher attrition leads to more resources spent on recruiting and training. A conservative estimate of the annual cost to the Navy of this misclassification is \$13 million. (Contact: Dr. Federico Garcia, (703) 824-2875)

### **Surface combatant Spiral Development Review**

The Navy's DD(X) program is part of a new surface combatant family of ships (SC FOS) that includes a new cruiser and the Littoral Combat Ship. To support this program, the Navy chartered a surface combatant Spiral Development Review (SC SDR), which will guide the program's development by building on three earlier works: the Surface Combatant for the 21st Century (SC-21) Mission Need Statement, which dates from the mid 1990s; the SC-21 Cost and Operational Effectiveness Analysis (COEA); and the DD-21 Operational Requirements Document (ORD). The Director of Naval Surface Warfare (N76) asked

CNA to provide a managing director and several analysts for the review. The Navy also chartered the development of a SC FOS Capstone Requirements Document, which will define the missions that the family of ships must support.

We will review current planning documents to determine how the defense planning landscape differs from that which influenced the SC-21 COEA and the DD-21 ORD. We will then determine how those differences might affect the major findings of the COEA and the shape of the DD-21 ORD and develop general precepts for the DD(X) program. In the longer term, we will develop precepts for other members of the SC FOS, thus providing guidance N76 can use to prepare plans for those ships. (Contact: Dr. Mark Lewellyn, (703) 824-2190)

### **Integrated amphibious operations**

The 1991 DoN Lift II study formed the basis for amphibious ship requirements. Since that study's release, the Marine Corps' operational employment concept, equipment, and force structure have changed. Because the operational concepts are still evolving, we analyzed a range of possible lift options. To do so, we developed an automated simulation tool that examines trade-offs between the size of the force, rates and distances at which it maneuvers ashore, available lift and ship-to-shore assets, and their potential impact on the amphibious force structure. Because the force structure of the "baseline" Marine Expeditionary Brigade (MEB) has also been evolving, we examined four different MEBs and several options for ship-to-objective maneuvers, or assaults.

The speed, utility, and fidelity of the simulation tool itself is perhaps more important than tendencies in the specific cases we examined. Once a notional MEB force list has been loaded, it is relatively easy to change its maneuver parameters and run the simulation again to see how the

changes affect the timing and buildup of combat power ashore. In the DoN Lift II study, calculations took days, sometimes weeks, because they were done by hand. We now have a tool that allows analysts and planners to compute the effects of changes quickly—in minutes or hours. Operators are now free to think about how they want to match warfighting needs to ship requirements, rather than waiting for calculations. (Contact: Mr. H. Dwight Lyons, (703) 824-2595)

## **OPNAV and the war on terrorism**

In response to the terrorist attacks on the United States, the Chief of Naval Operations began holding meetings of the CNO's War Council (CWC) to help the Navy staff focus on "organize, train, and equip" issues in support of the CINCs in the war on terrorism. The executive agent for the CWC is the Navy Operations Group ("Deep Blue") within the N3/N5 organization. Its purpose is to provide the CNO with innovative and transformational ideas and options for conducting combat operations. We are supporting Deep Blue with one on-site analyst and other analysts based at CNA.

One major Deep Blue project was a course corrections/lessons learned effort for Operation Enduring Freedom. CNA supplied many of the facts and "numbers" to support the operational conclusions. We also compared those lessons to those from Kosovo during Operation Allied Force to determine the lessons "learned" and those "to be learned." We have also provided analysis on force structure, scheduling, and anti-small-boat tactics. (Contact: Dr. John J. Clifford, (703) 824-2048)

## **Leadership interdiction operations**

LIOs are emerging as an important naval mission area in the wake of September 11. They are similar to traditional maritime interdiction operations (MIOs) though the scope of the LIO problem is potentially much larger. MIOs generally refer to detection and interdiction of vessels engaged in oil or arms smuggling, piracy, or the slave trade. Because of their small sizes, vessels such as dhows or privately owned fishing boats are not likely to play a significant role in these activities. However,

even a dhow could potentially be used to hide one or a few key Al Qaeda/Taliban leaders seeking to escape the area. Including these vessel types increases the sea traffic that must be detected, queried, and visually identified or boarded to corroborate the queries. The finite number of U.S. and coalition ships available to conduct LIOs further compounds the problem.

The first step in preventing terrorists from using sea lanes of escape is for naval forces to increase their situational awareness (SA) of all ships plying the Gulf of Oman and North Arabian Sea. The analysis problem is one of identifying suitable MOEs to quantify the SA. The CNA analyst with COMCARGRU SEVEN tackled this problem by determining percentages of vessels contacted in targeted LIO patrol areas and the frequency of those contacts. He then correlated the percentages to the number of patrol ships dedicated to each search area and to the specific ships involved in the searches and estimated the number of patrol ships needed to query all vessels within the patrol areas.

Finally, our analyst initiated an effort to have U.S. and coalition patrol ships report radar detection ranges of dhows and similar-size vessels, which they routinely did not do prior to the request. (Contact: Dr. Jeffrey Miers, (703) 824-2126)

## **Defending against small-boat attacks**

After the attack on USS *Cole* in October 2000, NAVSTA Norfolk asked us to study waterside force protection at that command. We calculated the probability of intercepting an attack boat with patrol boats that were randomly deployed along the waterfront, assuming the attack boat made a straight run toward the piers. Then we explored the effectiveness of both a random patrol-boat deployment and other types of deployment patterns, assuming the attack boat had a crude ability to evade the patrol boats.

In addition to the obvious conclusions that more patrol boats are better and larger identification distances are better, we found that: (1) Evasive attack boats succeed in their attack more often

than non-evasive attackers only when they are identified close to the piers. (2) The patrol boat deployment pattern that yields the highest intercept rate is different depending on how many patrol boats are available, where the attacker is identified, and the tactics that attacker uses. Using the current capabilities at NAVSTA Norfolk, we determined the probable success rate in intercepting small attack boats, the best deployment pattern for the patrol boats, and how to change tactics should the assets and capabilities change.

We are now examining small-boat attacks on ships anchored away from the piers and calculating the effect of varied patrol boat numbers and deployment patterns on the probability of intercepting one or more small-attack boats. (Contact: Dr. Ed McGrady, (703) 824-2484)

### **Navy medicine's response to the anthrax attack**

On October 15, 2001, when Senator Daschle's office received a letter containing highly purified powdered anthrax, the first response was from the Office of the Attending Physician—a Navy clinic located in the Capitol. Subsequently, the National Naval Medical Center (NNMC) Bethesda provided treatment to civilians and analyzed thousands of medical samples. Because of NNMC's prompt response, exposed persons were aggressively treated with antibiotics and had their exposure status to anthrax confirmed quickly. Another Navy asset, the Biological Defense Research Directorate, in Silver Spring, analyzed thousands of environmental air and surface samples from Capitol Hill to help in the subsequent decontamination of the Hart Senate Office Building. This response—the first time the Navy had dealt with positive real-life bioagent samples—was critical to dealing with the civilian crisis.

Last fall, the Navy and Environmental Preventive Medicine Unit (NEPMU) 6, in Honolulu, received potential anthrax samples for testing from every branch of the military, thus adding to the handling of its own samples, as well as putative anthrax samples under the jurisdiction of the State of Hawaii. The combined load severely tasked the

NEPMU 6 staff, whose major function is to deploy small teams, if needed, to its areas of responsibility. Fortunately, NEPMU 6 was not called upon during this time to deploy; otherwise, its ability to analyze the numerous samples would have been seriously compromised.

The events of last fall challenged Navy medicine to respond quickly to dealing with its own samples, non-Navy DoD samples, and civilian samples from Capitol Hill. The actual anthrax crisis was limited in scope but provides a glimpse of the personnel and equipment that will be needed in the case of future, larger-scale bioattack. (Contact: Dr. Christine Hughes, (703) 824-2686)

### **Navy's role in homeland defense**

Following the 9/11 attacks, the Navy contributed many assets to help the North American Air Defense Command and the Coast Guard defend against other possible terrorist attacks. As part of CNA's support to the Navy's crisis response, we examined the role the Navy could play in the evolving homeland security mission. First, we reconstructed the Navy's actions immediately after 9/11, recounting which assets deployed and what roles they played. We then reviewed the plans NORAD and the Coast Guard were developing to see where the Navy might best contribute.

As a possible force provider to NORAD, the Navy could contribute fighters, E-2Cs, and surface ships to this mission. We examined the benefit that Navy assets would provide, giving NORAD a way to measure the overall effectiveness of its air defense posture. This measure thus indicates the value of different levels of Navy fighter support. We also reviewed the use of E-2Cs as a substitute for the Air Force's E-3, and we showed how the utility of the cruisers and destroyers could be improved by closer NORAD-Navy collaboration.

In considering maritime homeland defense, we concentrated on the Navy's ability to provide surveillance and tracking of merchants and other shipping near the U.S. We examined the current tracking system and indicated its benefits and limitations. We estimated the surveillance that the homeland defense mission requires and

considered possible ways to achieve this surveillance. (Contact: Dr. Gregory Swider, (703) 824-2574)

### **Effects of housing allowances on rental markets**

Many fear that higher military allowances for housing will result in higher rents. If true, the benefits to service members of increasing allowances would be eroded. We examined two housing markets around bases. In the Oahu rental market, an increase in housing allowances to eliminate out-of-pocket rental costs would be only a 4-percent increase in income for military families, producing small increases in demand and in rent. We also found that the housing supply in Oahu increases when rents start to increase, suggesting that the supply response would lessen the effects of a demand increase.

In a very different market—the area near Fort Campbell, Kentucky—the military is a large share of the market, and rents could be more affected by allowances, but that does not appear to be the case. One possible reason is that the supply of rental housing has grown significantly since 1990, which mitigates increases in demand that might stem from higher allowances and increased local area population. The findings in these two different areas suggest that higher allowances benefit the service members, allowing them to buy nicer housing as opposed to paying higher rent for the same housing. (Contact: Dr. Brent Boning, (703) 824-2240)

### **Russia project**

CNA has worked with a counterpart institute—the Institute for USA and Canada Studies of the Russian Academy of Sciences, and particularly with its director, Dr. Sergey Rogov—since 1991. We have held 15 seminars, both here and in Russia; partic-

ipated in many workshops in Washington; and have brought guest speakers to seminars here at CNA, the latest being Deputy Chairman of the Russian Duma's Defense Committee, Dr. Alexey Arbatov, in April 2002. Early on, we focused on Russian-American naval cooperation, but, across the 1990s, the Russian navy essentially stopped operating. After 9/11, our focus has shifted to President Putin's new opening to the West, a new strategic nuclear relationship, and Russian relations with the NATO members. (Contact: Dr. Henry H. Gaffney, (703) 824-2975)

### **2002 Paul H. Nitze Award**

Lawrence S. Eagleburger, former Secretary of State, is the recipient of this year's Paul H. Nitze Award. CNAC's Board of Trustees created this award to recognize individuals whose record of sustained public service to national security honors Paul H. Nitze. Mr. Eagleburger helped chart and guide U.S. foreign policy through the turbulent end of the Cold War, the conflict in the Balkans, the confrontation in the Persian Gulf, and through revolutionary changes in the former Soviet Union and then Russia.

### **CNA analysts receive prestigious awards**

The Navy League presented the RADM W.S. Parsons Award for outstanding contributions to naval science to Dr. Donald Birchler for work done while he was the CNA representative to Commander, Patrol and Reconnaissance Wing One, Kamiseya, Japan. The Office of the Assistant Secretary of Defense awarded Dr. Ted Cavin the Decoration for Exceptional Civilian Service for his work as Deputy Director for Interdepartmental Integration, C4ISR Policy and Technology Assessment, from 1999 to 2001.